BULLETIN

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TORREY BOTANICAL CLUB.

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New or noteworthy American Grasses.—I.

By Geo. V. Nash.

Erianthus compactus n. sp. Culm erect, 4°–8° tall, stout, its nodes barbed, its summit and the axis of the panicle densely pubescent with appressed long rigid silky hairs. Sheaths glabrous or pubescent at the apex; leaves scabrous above, sparingly appressed-pubescent beneath, 6′–2° long, 3″–6″ wide, long-acuminate, narrowed toward the base; panicle narrowly oblong, 4′–6′ in length, about 1½′ wide, branches erect, 1′–2′ long; spikelets crowded, the internodes of the rachis about 1″ long; outer scales of the spikelet about 2½″ long, exceeding the pedicels and about equalling the basal hairs, lanceolate, acuminate, pubescent with long spreading hairs; inner scales shorter, the awn 5′–10″ long, straight, scabrous.

In moist or wet soil, New Jersey to North Carolina and Tennessee. The compact panicle composed of short erect branches, the short internodes of the rachis, and the crowded small spikelets readily distinguish this plant from the other straight-awned species.

SYNTHERISMA Walt. Fl. Car. 76 (1788).

[*Digitaria* Scop. Fl. Carn. Ed. 2, 1: 52. 1772. Not Heist. 1763].

The Digitaria section of *Panicum* is certainly sufficiently distinct to take generic rank and it has been so regarded by many authors. *Panicum* as now generally understood comprises too many forms. It would seem preferable to restrict the genus to the Eupanieae.

The name *Digitaria* was originally applied by Heister (Adans. Fam. Pl. 2: 38. 1763), to the *Tripsacum* of Linnaeus, and antedates by nine years the *Digitaria* of Scopoli (Fl. Carn. Ed. 2, 1: 52. 1772), who applied it to a group of plants that have since been considered by many as only a section of *Panicum*. This name is therefore a synonym of *Tripsacum* and not available. The oldest available name appears to be *Syntherisma* of Walter. A partial sysonymy of the three species occurring in the north-eastern United States would be as follows:

1. SYNTHERISMA SANGUINALIS (L.).
   Panicum sanguinale L. Sp. Pl. 57. 1753.
   Digitaria sanguinalis Scop. Fl. Carn. Ed. 2, 1: 52. 1772.
   Syntherisma praecox Walt. Fl. Car. 76. 1788.
   Paspalum sanguinale Lam. Tabl. Encycl. 1: 176. 1791.

2. SYNTHERISMA LINEARIS (Krock.).
   Panicum lineare Krock. Fl. Sil. 1: 95. 1787.
   Syntherisma serotina Walt. Fl. Car. 76. 1788.
   Digitaria humifusa Pers. Syn. 1: 85. 1805.
   Syntherisma glabra Schrad. Fl. Germ. 1: 163. 1806.
   Panicum glabrum Gaud. Agrost. 1: 22. 1811.

3. SYNTHERISMA FILIFORMIS (L.).
   Panicum filiforme L. Sp. Pl. 57. 1753.
   Paspalum filiforme Sw. Prodr. 22. 1788.
   Syntherisma villosa Walt. Fl. Car. 74. 1788.
   Digitaria filiformis Muhl. Gram. 131. 1817.

PANICUM PORTERIANUM nom. n.
   Panicum latifolium Walt. Fl. Car. 73. 1788. Not Linnæus, 1753.
   Panicum Walteri Poir. in Lam. Encycl. Suppl. 4: 282. 1816. Not Pursh, 1814.
   Panicum latifolium var. *molle* Vasey, Bull. Bot. Div., U. S. Dept. of Agric. 8: 33. 1889.

Search has failed to disclose an available published name for this plant. The Linnaean name belongs to a tropical species. The *P. Walteri* of Poiret is antedated by two years by Pursh's name which was applied to an entirely different plant, the *P. Crus-galli* var. *hispidum* of Torrey. The varietal name of Vasey has

already been used. It is necessary, therefore, to give this well-known plant a name, and the above is proposed in honor of Prof. Thos. C. Porter.

PANICUM SCRIBNERIANUM nom. n.

Panicum scoparium S. Wats. in A. Gray, Man. Ed. 6, 632. 1890. Not Lam.

Panicum scoparium var. *minor* Scribn. Bull Univ. Tenn. 7: 48. 1894. Not *P. capillare* var *minor* Muhl. 1817.

This plant is certainly not the *P. scoparium* of Lamarck. That is found only in the southern mountains and is a tall large-leaved grass with a few-flowered panicle. There seems to be no available name published for this plant, and so the above is proposed, in honor of Prof. F. L. Scribner, who was the first to indicate its difference from *P. scoparium* Lam.

PANICUM MINUS (Muhl.).

Panicum diffusum Pursh, Fl. Am. Sept, 1 : 68. 1814.

Panicum capillare var. *minus* Muhl. Gram. 124. 1817.

Panicum capillare var. *sylvaticum* Torr. Fl. U. S. 149. 1824.

Panicum Philadelphicum Bernh; Nees. Fl. Bras. 198. 1829.

This plant is readily distinguished from *P. capillare*, of which it has been considered a variety by its more slender habit, and smaller spikelets in pairs at the extremities of the ultimate divisions of the smaller and less branched panicle.

PANICUM BOREALE n. sp. Culms at first erect and simple, 1°–2° tall, later sometimes decumbent and somewhat branched, smooth and glabrous. Sheaths shorter than the internodes, smooth and glabrous, ciliate; ligule short, ciliate; leaves 3′–5′ long, ¼′–½′ wide, erect, truncate or rounded at the sparsely ciliate base, acuminate; panicle 2′–4′ in length, ovate, branches 1′–2′ long, spreading or ascending; spikelets 1″ long, about equalling the pedicels, ellipsoid, pubescent; first scale ovate, obtusish, about one-third the length of the spikelet; second and third ovate, 7-nerved, pubescent, equalling the fourth; fourth oval, chartaceous, acute, slightly exceeding ¾″ in length.

Moist soil, Newfoundland and Ontario to New York, Vermont and Minnesota. This plant was first noted by the writer in 1893 in the Catskill Mts., near Cario, N. Y. The smaller forms somewhat resemble *P. laxiflorum*, but the glabrous sheaths and shorter leaves, and the different shaped spikelets readily distinguish it

from that species. No. 222, Robinson and Schrenk, 1894, and Macoun's plant, collected at Windsor, N. S., June 29, 1883, belong here.

PANICUM SPHAGNICOLUM n. sp. Culms 2°–3° long, at first simple, later repeatedly dichotomously branched, the branches very divergent. Primary sheaths hirsute, those of the branches glabrous; ligule a ring of short hairs; leaves smooth and glabrous, the primary 2′–3½ long, 2″–5″ wide, those of the branches 1′ long or less, ½″–1½″ wide, appressed; primary panicle about 2′ in length, the branches ½′–1′ long, spreading; secondary panicles about ½′ long, raceme-like; spikelets 1¼″ long, few and appressed, pubescent; first scale ovate, acute, 1–3-nerved, about half the length of the spikelet; second scale broadly ovate, 7-nerved, somewhat shorter than the 7–9-nerved third one, the fourth chartaceous, smooth, elliptic, acute, slightly exceeding 1″ in length and equalling the third.

The late and much branched state was collected by the writer this summer in a sphagnum bog at Lake City, Florida, and will be distributed as No. 2500. The main stem rises through the sphagnum and then divides dichotomously, the branches spreading out over the surface of the moss, the ends being erect. The early and simple form was found by A. W. Bitting in a cypress swamp at the same place, on April 2, 1892.

IXOPHORUS Schlecht. Linnaea, 31: 420. 1861–62.

[SETARIA Beauv. Agrost. 113. 1812. Not Ach. 1798.]

Otto Kuntze (Rev. Gen. Pl. 767) has referred these grasses to the genus *Chamaeraphis* R. Br., and this disposition of them has been accepted by several writers. But *Chamaeraphis* is a tropical genus in which the spikelet and bristle fall attached, while in the plants in question the spikelet articulates above the bristles, hence leaving them persistent when it falls. Feeling confident that the two groups are generically distinct, I have sought for a published name for the latter, and find *Ixophorus* of Schlechtendahl to be the earliest one available. It is based on *Urochloa uniseta* Presl, which is *Setaria uniseta* Fourn. The forms occurring in the northeastern United States are as follows:

1. IXOPHORUS VERTICILLATUS (L.).
Panicum verticillatum L. Sp. Pl. Ed. 2, 82. 1762.
Setaria verticillata Beauv. Agrost. 51. 1812.

2. IXOPHORUS GLAUCUS (L.).

Panicum glaucum L. Sp. Pl. 56. 1753.

Setaria glauca Beauv. Agrost. 51. 1812.

3. IXOPHORUS ITALICUS (L.).

Panicum Italicum L. Sp. Pl. 56. 1753.

Setaria Italica R. & S. Syst. 2: 493. 1817.

4. IXOPHORUS VIRIDIS (L.).

Panicum viride L. Sp. Pl. Ed. 2, 83. 1762.

Setaria viridis Beauv. Agrost. 51. 1812.

STIPA AVENACIOIDES n. sp. Culms 2°–4° tall, simple, erect, slender, smooth or puberulent below the lower nodes. Sheaths about half the length of the long internodes, smooth and glabrous; ligule obtuse or acute, 1″ long or less; leaves involute-setaceous, smooth and glabrous, the basal about 1° long, those of the culm 1′–5′ long, the uppermost often nearly wanting; panicle simple, 4′–10′ in length, finally long-exserted, the scabrous branches 1′–3′ long, the lower in pairs; spikelets few; lower halves of the empty scales purple, 5-nerved below, acuminate, the lower 8″–10″ in length, the upper slightly longer; flowering scale with a ring of short brown hairs at the apex, brown, otherwise glabrous, 7″–8″ long, including the callus which is 3″–4″ long, and covered with appressed brown silky hairs increasing in length toward the top; awn 3′–4′ long, pubescent below, twisted for about half its length, tightly so at the base, twice bent.

Collected by the writer in 1895 in the pine lands near Cassia, Lake Co., Florida, No. 2051.

CAMPULOSUS CHAPADENSIS Trin. Spec. Gram. *pl. 303.*

Ctenium Chapadense Doell, Mart. Fl. Bras. 2: Part 3, 73. 1878.

This plant was found growing plentifully by the writer this summer in the flat woods at Lake City, Florida, no. 2212. A. H. Curtiss collected the same in East Florida in 1875; his no. 4058 also appears to be this plant. It was also secured by Fredholm in Duval Co., Fla., in 1893, no. 313.

It differs from *C. aromatica* (Walt.) Scribn. (*Ctenium Americanum* Spreng.) in its more slender habit and narrower spikes; smaller spikelets divergent from the rachis, not pectinate; the scales narrower and very acute; the awns more delicate and much longer.

CHLORIS NEGLECTA n. sp. Culms 2°–4° tall, erect, much compressed, smooth and glabrous. Sheaths glaucous, compressed,

those at the base of the culm crowded and equitant; ligule a ring of short hairs; leaves smooth and glabrous, glaucous, 4′–15′ long, 2″–4″ wide, abruptly acute, the uppermost culm leaf short, and usually remote from the infloresence, or often wanting; spikes 4–6, 3′–5′ long, erect or slightly spreading; spikelets divergent to the triangular rachis, which is scabrous on the angles; empty scales of the spikelet 1-nerved, scabrous on the keel, the first ovate, acute, about two-thirds as long as the second; second 2-toothed, the teeth obtuse and erose at the apex, oblong, 1½″–2″ long, including the scabrous awn which is ½″ long; third scale about 1½″ long including the awn which is ½″ in length, brown, ovate, 3-nerved, the nerves pubescent with long ascending hairs; fourth scale empty, 1″ long, elliptic in outline, cucullate, remote from the third, bearing an awn about ½″ long just below the apex; seed ¾″ long, narrowly oval in outline, triangular, translucent, yellowish streaked with purple.

Resembles *C. Floridana* Vasey; that species differs in having only 1 or 2 spikes; larger spikelets having 5 scales and 2 flowers, the upper one staminate; second empty scale broad and rounded at the erose apex; the hairs on the nerves of the third scale shorter; the fourth scale obovate and obliquely truncate at the apex.

Collected by the writer near Orange Bend, Lake Co., Florida, during the past summer, in low pine lands, no. 2149. It was also secured by A. H. Curtiss at Jacksonville in 1875; his number 3445 is the same. Fredholm obtained it along the banks of the St. John's River in Duval Co., Florida, in 1893, no. 319.

Notes on some Cyanophyceae of New England.

By William Albert Setchell.

The Cyanophyceae or Blue-Green Algae of the United States are little represented in collections and exsiccatae, and their occurrence and distribution is in great need of more careful study. For many years there has been a lack of good monographs relating to the group, and the redescribing under many different names of the same form made the matter of the identification both of genera and of species so difficult that there has been little temptation to the ordinary student to pay any attention at all to any of the forms.

Recently, however, there have been published two monographs, the results of the patient working over of abundant materials by men of such experience and insight that the filamentous species of the Cyanophyceae are now arranged and defined in a most satisfactory fashion.

The heterocysted forms, multiplying by means of hormogonia, are given in the "Revision des Nostocacées Heterocystées" by Bornet and Flahault (Ann. Sci. Nat. (VII.) **3**: 323–381, 1886; **4**: 343–373, 1886; **5**: 51–129, 1887; **7**: 177–262, 1888), and the homocysted forms with the same kind of reproduction are given in the "Monographie des Oscillariées" by Gomont (Ibid. VII. **15**: 263–368, *pl. 6–14*, 1892; **16**: 91–264, *pl. 1–8*, 1892.)

In both of these works a considerable number of species are credited to America, chiefly from specimens collected by Farlow, Collins, Holden, Wolle and the writer, but many more are to be expected and the writer hopes to be able to supply at some future time a full list of all found within our boundaries.

The marine forms have been much more studied than those of the fresh waters, and have been mentioned in the papers of Farlow and Collins. The account of the species of the fresh waters found in Wolle (Fresh Water Algae of the United States, Bethleham, 1887) is, however, so confused and inexact as to allow no dependence to be placed upon it. Consequently we must, for the present, accept as a summary of the knowledge of our species the information contained in the two monographs mentioned above and proceed to work out from them and with their aid.

The following species, occurring for the most part in New England, seem to deserve mention.

Calothrix Juliana (Menegh.) B. & F., known only in this country from Mill Brook, Shelburne, N. H., where it was collected by Prof. W. G. Farlow, has occurred to the writer in Massopoag Brook, Sharon, Mass., and in Trading Cove Brook, Norwich, Conn. It grew upon stones in small tufts consisting of a few erect parallel filaments and could easily be distinguished by the touch, even on stones thickly covered with diatoms and other forms. It is easily distinguished from any other of our species by the absence of heterocysts. It grows upon wood as well as stones in the Quinebaug River, in Lisbon, Conn.

C. Braunii B. & F., credited by Bornet and Flahault to Germany and Denmark, was first found in this country by the writer, growing upon stones in a small brook at Sharon, Mass. Later it was found near Bridgeport, Conn., by Mr. Isaac Holden, growing upon wood and stones. It also forms extended patches on rounded stones in a small rivulet at Cataumet, Mass. It is of rapid growth, forming patches which are at first small and orbicular, but later enlarging and confluent into broad expansions of indefinite extent and shape, and often becoming decidedly verrucose on the surface. In color the patches vary from dark green to nearly black. The filaments are short and parallel and the structure of the patch resembles that of *Isactis plana*, but, of course, lacks the common enclosing matrix of that form.

RIVULARIA BORNETIANA n. sp. This curious species was found growing on the stems and leaves of *Ruppia maritima*, forming solid spherical thalli varying from somewhat less than a millimeter to something over a centimeter in diameter, according to age. Frequently a row of closely-placed spheres coalesce into a cylindrical mass 5–8 centimeters long. The thalli are of fairly firm consistency and vary in color from a deep bluish-black when young to a light olive green or pale yellow when old. They are not at all incrusted with lime. The filaments radiate in a regular fashion from the center, becoming, however, decidedly flexuous in the older thalli. They vary in diameter from 8–20 μ, and separate readily from one another on crushing. The sheath is wide and conconspicuous, colorless to deep brown in color, and very much lamellose and ocreate above. It varies in width below from 2–4 μ, sometimes becoming as wide as 20 μ. The trichome is usually about 4 μ in diameter, but occasionally reaches 16 μ. It is usually very much torulose when young, but very little so when older. The cells are from one-half to five times as long as broad. The cell limits are distinct in younger but very obscure in the older specimens, and the cell contents are light blue and provided with a few scattered granules. The heterocysts are basal, from depressed globular to ellipsoidal in shape, and from 6–8 μ in diameter. The terminal hairs are long and slender in the younger plants, but are almost wanting in the older ones.

For several years this species has been found in abundance in

shallow water about the edges of Watch Hill Pond, in southwestern Rhode Island. The pond is separated from the open Atlantic Ocean by only a narrow line of sand dunes, through and over which the autumnal and winter storms often dash the surf. Consequently the water of the pond has a distinctly saltish taste. The *Rivularia* is associated with *Anabaena variabilis*, *Phormidium Valderianum*, *Microcoleus chthonoplastes*, *Chara aspera*, *Chara crinita* and various species of *Closterium*, *Scenedesmus*, etc.

This species approaches *R. Biasolettiana* in structure, but differs from it decidedly in habit, and it was thought at first it might perhaps be an epiphytic form of that species. But the globular shape of the thalli is exceedingly constant, and although carefully sought for, typical *R. Biasolettiana* was not found anywhere in the same vicinity. It seems best therefore to regard it as a distinct species, and the writer takes great pleasure in dedicating it to Dr. Edouard Bornet, of Paris, who has done so much toward furthering our knowledge of this group of plants.

R. Biasolettiana Menegh. occurs in fairly typical form in perfectly fresh water at Gardner's Lake, in eastern Connecticut. It forms small flattened thalli on stones along the shores of the lake.

Capsosira Brebissonii Kuetz., occurring in Sweden, France and Germany, grows also in this country upon a large rock on the eastern side of Round Pond at Lantern Hill, near Mystic, Conn. It forms small hemispherical black thalli from 1–2 mm. in diameter. They are crushed with some difficulty, but then show the *Stigonema*-like filaments with lateral heterocysts very plainly. It occurs sparingly also upon submerged dead wood.

Nostochopsis lobatus Wood, found near Philadelphia by Wood and in Vermont by Faxon, has occurred to the writer in some abundance at Mt. Carmel, about seven miles north of New Haven. The thalli grew upon stones in more or less rapid water in a brook just west of the "head" of the mountain.

Microchaete tenera Thuret, not hitherto credited to this country, grows in various localities in Connecticut. Specimens collected near Norwich and examined by Dr. Bornet, have cylindrical spores in a series, exactly corresponding to those described for *M. diplosiphon* Gomont. This species much mixed with various gelatinous algae occurs upon dripping rocks near Norwich and New Haven, Conn.

Scytonema crispum (Ag.) B. & F. This species, known as *Scytonema cincinnatum* or *Lyngbya cincinnata*, although not credited to North America by Bornet and Flahault, is probably not uncommon in the Eastern United States. Wolle had it from Pennsylvania or New Jersey, as is evidenced by a specimen in the writer's possession. Mr. Isaac Holden has found it near Lanesville, Conn.; Mr. W. J. V. Osterhout finds it in abundance near Providence, R. I.; Mr. Wesley R. Coe, in Florida; Dr. J. E. Humphrey, in Jamaica, W. I., and the writer about New Haven, Conn. The filaments vary very much. Sometimes both branches and heterocysts are rare and the species looks very much like a *Lyngbya*, very often the scanty branches occur single and adjacent to a heterocyst and it resembles greatly a *Tolypothrix*, while the geminate branches midway between two heterocysts, characteristic of *Scytonema* are generally found only after long and careful search.

Scytonema Javanicum (Kuetz) Bornet, one of the species with erect branches agglutinated into *Symploca*-like fascicles and previously credited chiefly to the tropics (Java, Brazil and Guyana), but also found in France, according to Bornet and Flahault, reappears in this country in small quantity, growing on the trunks of trees in Middlesex Fells, Melrose, Mass.

Hassallia byssoidea Hassall is a very variable species and is credited to South Carolina only in this country by Bornet and Flahault. A form of it, not exactly typical, grows on rocks at the water's edge along the Quinebaug River in Lisbon, Conn. It forms small tufts nearly black in color. It is characterized, as a form, by its regular, erect branches given off at an acute angle.

Desmonema Wrangelii (Ag.) B. & F. is a curious genus of the Tribe Scytonemaceae, characterized by having several filaments inclosed in a common sheath and also by having basal heterocysts. It is very abundant in Roaring Brook, a mountain rivulet in Cheshire, near New Haven, Conn. It grows upon stones and rocks in the swiftest currents and forms slippery, bluish black expansions. On being detached from the substratum it falls apart into small penicillate tufts. It is present during the month of June at least.

Nostoc parmelioides Kuetz. is one of the most readily recognized species of the genus. The frond is erect and attached at

one point. It is generally strongly flattened and orbicular, with edges more or less strongly crenate. Within, the central filaments radiate from the attached portion, but the cortical filaments are convolute and twisted. It is the *N. cristatum* of Bailey and the *N. alpinum* of Wood and Wolle. Bailey found it in New York, and Wood and Wolle in Pennsylvania. The writer has it from near Harrisburg, Penn., collected by Harry M. Kelley, and has found it in abundance in brooks at Mt. Carmel, Conn.

Anabaena variabilis Kuetz., which may be distinguished from any other species of the genus occurring in this country by its oval, seriate spores remote from the heterocysts, occurred to the writer in the autumn of 1894 in the brackish pond near Watch Hill, R. I., mentioned above. There was a great abundance of it, forming a dark greenish-brown, gelatinous layer on the floating leaves of *Ruppia*. The species is new to North America.

Schizothrix lardacea (Ces.) Gomont. Of the twenty-seven species of this homocysted genus given by Gomont in his monograph, only four are credited to North America north of Mexico. *S. lardacea* was found in some abundance on dripping vertical faces of trap at East Rock, New Haven, Conn. It formed masses of a dirty brown color. It has previously been found only in Germany, France and Italy.

Sch. fragilis (Kuetz.) Gomont was found at Brookfield, Conn., forming reddish crusts on stones kept moist by the spray from a waterfall. The red color was due to a unicellular organism associated with it. Hitherto it has been credited only to Switzerland.

Hydrocoleum homoeotrichum Kuetz. The species of the genus *Hydrocoleum* are distinguished by their caespitose habit and calyptrate terminal cell. No one of the four fresh water species is credited to North America. *H. homoeotrichum*, however, was found by the writer growing in small short tufts on the posterior ends of shells of living fresh water mussels (*Anodonta*) in Trading Cove Brook, Norwich, Conn.

Symploca muralis Kuetz., collected in New England by Farlow grows also on moist soil about the public pump in East Falmouth, Mass., and what appears to be the same species occurs abundantly on flower pots in greenhouses in New Haven, Conn.

Lyngbya versicolor (Wartm.) Gomont, not credited to North

America in the "Monograph," has been found by Dr. Humphrey in Jamaica, W. I. (cf. Phyc. Bor. Am., No. 54), and by the writer at Salisbury, Conn., and in two localities near New Haven, Conn. (cf. ibid., No. 54). It grows attached at first, but later floats free.

L. Lagerheimii (Moeb.) Gomont. A very slender species distinguished by being fairly regularly twisted into a loose spiral, previously found only in Brazil, has reappeared in Southern New England. The species grows in brackish water in a small pool near Norwich, Conn., and in Little Pond, Falmouth, Mass. In each case it was growing upon *Cladophora expansa* and in one case was associated with *Scenedesmus caudatus* and various desmids, while in the other it grew with *Chara crinita* and *Gloeotrichia Pisum*. It also grows somewhere near New Haven, as considerable quantities of it appeared in an aquarium in the Biological Laboratory of the Sheffield Scientific School.

Phormidium Valderianum (Delp.) Gomont. This is another interesting species found in Watch Hill Pond, R. I. It grows in fresh water in Europe and forms expanded, lamellose strata on rocks and plants. In this locality, it forms a verdigris-green gelatinous cylindrical covering to the elongated stems of *Ruppia maritima*. It is common to find along the shore of the pond *Ruppia* stems partially dried and then the *Phormidium* layer is papery in texture.

Arthrospira Jenneri Stiz. is not credited to this country by Gomont. It is a large form and unmistakable. It has been found by Mr. Isaac Holden in some abundance near Schenectady, N. Y.

ARTHROSPIRA GOMONTIANA n. sp. For several years Mr. Isaac Holden and the writer have found in the vicinity of Bridgeport, Conn., scanty material of an *Arthrospira* which appeared to be different from any previously described. In June, 1895, however, a considerable quantity was found and sufficient material was preserved for future distribution and study.

This species makes its home in a pool of fresh water near Factory Pond in the northern part of Bridgeport, and floats upon the surface in verdigris-green patches of comparatively small size, resembling very much the so-called "Wasser blüte" of *Anabaena flos-aquae*, *Gloiotrichia Pisum*, etc. The floating masses are made up of small flocculent bits, each of which contains a considerable

number of the trichomes of the *Arthrospira* held together by a common jelly.

The diameter of the trichome is from 2.5–3 μ. It is regularly twisted into a rather lax spiral, the distance between the turns being 16–18 μ, and the width of the turn about 6 μ. Caduceus forms are not uncommon. The cells of the trichome vary from 4–5 μ in length; the cell divisions in vigorous trichomes are indistinct with few granules and with the cell contents light bluish green by transmitted light. In the majority of the cells large vacuoles are present.

This form is decidedly smaller than either *A. Jenneri* or *A. Platensis* and with a laxer spiral. From *A. miniata* it differs both in habitat and habit, and in the fact that the extremities are not at all capitate. As the species appears to be new, the writer desires to dedicate it to M. Maurice Gomont, of Paris, as a token of his esteem and respect.

The writer wishes also to express his deep obligation to Dr. Bornet and M. Gomont for assistance in determining the above-mentioned forms, as well as others, without which no certainty would have been possible.

Personal Nomenclature in the Myxomycetes.

By O. F. Cook.

As has been said, there are two ways of naming plants, according to the system of priority, or according to the personal system, which is no system at all. The alleged object of both methods is to secure uniformity of nomenclature, and opinion upon their relative merits depends on whether uniformity with the past is looked upon as more important than uniformity with the future. That the personal system does not always secure uniformity even with the immediate past is evidenced by two recent books, both purporting to be monographs of the same group of organisms. They are based, practically, on the same collections and are published only two years apart. Massee's "*Monograph of the Myxogastres*" recognizes 41 genera. Lister's "*Mycetozoa*" describes 38, but 13 of these are different from those of Massee. Massee has 430 species, of which nearly one-third are not recognized as valid by Lister, while another third have their names changed, so that of

the 430 binomial specific names in Massee's book just 160 are to be found in Lister's. The student who would compare or make use of both works must spend much time in more or less fruitless attempts at cross-references, for the indexes are defective.

No charge of adhesion to the laws of priority can be made effective against either Massee or Lister, any more than against their great predecessor Rostafinski. The indications are that all three have believed that variety in names would add a pleasant synonymical spice to the study, with the advantage of discouraging beginners not accustomed to much seasoning of this kind.

Thus to judge from the past the personal system will not give us uniformity, for the recent works differ in nomenclature as much or more than the older. A most radical change, however, must follow any attempt at an application of the law of priority, for it will remove nearly all the names used for the last twenty years, or since the publication of the works of DeBary and Rostafinski. Nearly all the Rostafinskian generic names must be replaced by others now disused for half a century or longer. If, however, these sweeping changes will bring us at once into uniformity with all the future, the wisdom of making them is evident—the sooner the better. Apparently, however, the application of the rules through which uniformity is expected for the higher plants does not give the same promise in the case of the Myxomycetes. A large number of old generic names exist, and their authors included under them forms now recognized as belonging to several different families, for the older writers had absolutely no idea of genera as we understand them. The classification in this group is by no means settled, and the principle that a genus is a negative conception merely, and consists of what may be left under a generic name after subsequent genera are withdrawn, will bring about in the Myxomycetes the result that with changes of view on the relative importance of characters, changes in nomenclature will be necessary. To illustrate by a simple case, the genus *Physarum* was described by Persoon (1797) on four species, as follows:

Physarum columbinum=Lamproderma.

" bivalve=Angioridium, } =Fuligo.
" viride } =Tilmadoche, }
" nutans }

Thus all the original species of Physarum have at one time or another been removed from the genus, and we are brought to the alternative of dropping the old name or of preserving it by slipping it around over the different generic groups, representatives of several of which were included under most of the old names. If we adopt Lister's characterization of Fuligo we must abandon the genus Physarum in the sense in which recent authorities have used the name, for, as Lister himself states, the generic character of Fuligo depends on the presence or absence of a bell-jar over the ripening plasmodium. Physarum would then either be dropped or passed back to what is now called Lamproderma, a genus of a distinct family. What would then be the confusion if the next writer should find characters on which Fuligo, Tilmadoche and Angioridium might be held distinct?

That there will be immediate uniformity of view on the classification of the Myxomycetes is not to be expected, and if we are to have an arbitrary system of rules by which the law of priority is to be applied in nomenclature it seems that one might be made which would at least fix a generic name to a certain natural group which varying views of classification could change only in size or supposed importance. To follow a principle which may necessitate that a name be passed back and forth between different families or natural orders is to create confusion by law. To drop names based on species which represented new generic types involves a principle so manifestly unjust that continued acceptance of it is not to be expected.

One method by which both these difficulties could be forever avoided is to agree that unless the author of a genus designates a specific type in connection with his original description, the first species referred to the genus may be looked upon as the generic type, the genus to stand only if its type is found distinct from previously named genera. In the Myxomycetes this principle would probably necessitate fewer changes than either of the others. Such a simple method of settling nomenclatorial problems may be thought to smack of empiricism. Its utility and practicality cannot, however, be doubted, and it seems to be in general and growing favor among zoölogists. The only serious objection to its general application seems to be that a large number of names

would be changed. Whether the subsequent stability of generic names would not entirely overbalance this objection is a question worthy of careful consideration, for if botanists are to follow arbitrary rules for the sake of uniformity in nomenclature, it is not probable that they will be satisfied until a system is framed which shall insure the uniformity.

New Species of Fungi.

By J. B. Ellis and B. M. Everhart.

I. SANDWICH ISLAND FUNGI.

Collected by Mr. A. A. Heller, in the Island of Oahu, during the summer of 1895.

Meliola Sandicensis E. & E.

Mycelium amphigenous, but mostly hypophyllous, forming suborbicular black patches 2–4 mm. diam. with a well defined outline. Mycelium abundant, with opposite spreading branches 6–7 μ thick. Capitate hyphopodia abundant, opposite, small (12–15 × 6–7 μ), short-stipitate, the upper cell ovoid or subglobose; mucronate hyphopodia very scarce, ampulliform with a short, straight neck, found occasionally standing opposite a capitate hyphopodium. Bristles abundant, both on the mycelium and surrounding the lower part of the perithecia, 300–500 μ long, 8–10 μ thick, generally with slight swellings at intervals, translucent-brown at first, finally almost opake, septate at intervals of about 40 μ, gradually attenuated above to a point. Perithecia scattered on the mycelium, subglobose, of coarse, cellular structure, papillose-roughened, 150–200 μ diam. subostiolate, finally collapsing. Asci clavate-elliptical, 50 × 25–30 μ, sessile, 2–3–4-(mostly 2-) spored. Sporidia oblong-cylindrical, 4-septate and constricted at the septa, rounded at the ends, 33–40 × 12–15 μ, brown.

The bristles are so abundant that the patches of mycelium resemble dense tufts of black hair, almost entirely hiding the perithecia. This character, with the greater length of bristles and the comparative absence of mucronate hyphopodia, with the 2–4-spored asci, distinguish this from *M. malacotricha* Speg., *M. amphitricha* Fr., and the other species having similar sporidia.

On leaves of some plant of the Family Rubiaceæ. No. 2369.

ASTERINA GLOBIFERA E. & E.

Epiphyllous. Perithecia scattered, ovate, becoming more or less depressed and collapsed, small, 100–200 μ diam., astomous, membranaceous, overrun and surrounded by an obscure mycelium, consisting of yellowish-hyaline prostrate, septate, branching threads and erect or ascending moniliform, brown threads. Perithecia at first filled with yellowish-brown, globose cells, 6–9 μ diam, among which, later on appear the obovate or subglobose asci 20–30 × 15–20 μ containing 8, elliptical hyaline spordia 15–20 × 8–10 μ composed of two globose cells with a constriction between them.

On *Grevillia* sp. No. 1946.

SCIRRHIA LOPHODERMIOIDES E. & E.

Stromata narrow-elliptical or linear, ½–2 mm., long, or by confluence ½–1 cm., long, raising and splitting the epidermis, black. Ascigerous cells globose, 150–200 μ diam., lying in a single series. Ostiola inconspicuous. Asci oblong, sessile, 80–90×20–22 μ, 8-spored. Sporidia crowded-biseriate, cylindrical, curved at the lower end (with a septum where the curve begins)? greenish-hyaline, 35–40x7–8 μ. Differs from *S. striaeformis*, Niessl., in its longer, cylindrical sporidia.

On dead culms of some grass. No. 2368.

PUCCINIA OAHUENSIS E. & E.

II. & III. Sori mostly hypophyllus, erumpent, naked, orange-yellow, pulverulent, subconfluent, not margined by epidermis. Uredospores obovate, orange-yellow, coarsely and strongly echinulate, 22–30 × 20–22 μ.

Teleutospores mixed with the uredospores, obovate-elliptical, smooth, yellow-brown, slightly constricted, darker at the apex and slightly thickened, but without any distinct papilla, 27–40 × 15–20 μ. Pedicles shorter than the spores.

Remarkable for its almost permanently yellow sori, which only become a little darker after the leaves become dead and dry. *P. Windsoriae* Schw., has spores on longer pedicels, more distinctly thickened above and scarcely constricted.

On leaves of some unknown grass (resembling *Panicum* or *Holcus*). No. 1976.

UREDO VELATA E. & E.

Sori amphigenous but mostly epiphyllous, pluvinate, scattered, orbicular, ½–1 mm. diam., mostly surrounded by a reddish-purple discoloration, covered by the epidermis which is finally ruptured in the center or cracks across, but still remains covering the sori. Spores elliptical, pale, with a thick epispore, faintly aculeolate, 22–30 × 18–20 μ. Paraphyses sparingly developed.

Differs from *U. euphorbicola* B. & C. and *U. tordillensis* Speg. in its larger spores and does not seem referable to any of the euphorbicolous species of *Uromyces* hitherto described.

On *Euphorbia cordata*. No. 2027.

PHYLLOSTICTA SCAEVOLA E. & E.

Spots orbicular, light brown, 2–3 mm. diam. Perithecia hypophyllous, innate-superficial, black, 60–80 μ diam., pierced above. Sporules clavate-oblong, 2–3-nucleate, hyaline, 10–12 × 2½–3 μ.

The perithecia in the specimens examined were mostly sterile.

On leaves of *Scaevola Chamissoniana*. No. 2124.

HENDERSONIA NITIDA E. & E.

Perithecia epiphyllows, scattered, innate-prominent, globose, 90–110 μ diam., black and shining, perforated above, about one-half buried in the substance of the leaf. Sporules oblong, 1–3-septate, not constricted, hyaline at first, then pale brown, 12–15 × 3½–4½ μ, on slender basidia shorter than the sporules.

On living leaves of *Myrsine* sp. No. 2305.

ASCHERSONIA MARGINATA E. & E.

Stromata amphigenous, carnose, sessile, adnate, hemispherical or strongly convex, mostly narrowly marginate, 2–3 mm. diam, nearly black outside (yellow when fresh)? light-yellow within and of sclerotoid structure. Perithecia (ascigerous cells) sunk in the stroma in groups or clusters, of 4–8, minute (75–110 μ) irregular in shape from mutual pressure. Ostiola slightly prominent, soon perforated. Sporules fusoid, 2–3-nucleate, hyaline, 5–7x1½ μ, acute at each end. Basidia slender, longer than the sporules.

Differs from *A Tahitenis* Mont., and *A turbinata* Berk., in its clustered perithecia and smaller sporules.

On living leaves of *Psidium* No. 1945.

II. FLORIDA FUNGI.

Collected by Mr. Geo. V. Nash, in Florida, during the summer of 1895.

ASTERIDIUM DOTHIDEOIDES E. & E.

Perithecia epiphyllous, scattered or loosely grouped, and often 3–4 confluent, flattened-convex, 300 μ diam., or elongated and hysteriiform, 500 × 200 μ, fringed around the base with a prostrate radiating sparingly anastomosing mycelium, of brown subcontinuous threads about 5 μ thick with obovate or globose one-celled hyphopodia about 7 μ diam. at distant intervals. Asci

obovate, sessile, 30–40 × 18–21 μ. Sporidia crowded, oblong-elliptical, about 20 × 7–8 μ, often slightly curved, obtuse, yellowish-hyaline and mostly uniseptate at first, finally brown and biseptate, the septa hyaline.

Very different from *A. lepidigena* E. & M. on the same host.

On leaves of *Andromeda ferruginea*. No. 1939.

SEPTORIA QUERCICOLA SACC. Mich., 1: 174; Syll. 3: 505.

Spots orbicular, 1–2 mm. diam., dirty-white with a dark margin, or ferruginous, larger and irregular. Perithecia amphigenous but more distinct above; on the white spots, mostly only one in the center of the spot; on the larger ferruginous spots, more numerous and scattered. Sporules cylindrical, curved,, subattenuate at the ends, 3–septate, 25–40 × 3, μ. Var. *cinerea* E. & E., on leaves of *Quercus cinerea*, differs only in its longer (40–60), 3–6–septate sporidia.

On *Quercus* sp. No. 2091.

DARLUCA ARCUATA E. & E.

Perithecia globose, 75–100 μ diam. Sporules arcuate-fusoid, hyaline, 3-septate, not constricted, 14–16×2½–3 μ.

Distinguished from the other species of this genus by its arcuate sporules.

Parasitic on *Uredo*, on leaves of *Andropogon*? No. 1837.

COLLETOTRICHUM COMMELINAE.

Spots dark brown, suborbicular, 2–3 mm. diam., sub-indefinite, paler and more obscure below. Acervuli about 100 μ diam., fringed with dark brown, obscurely septate hairs 4–5 μ thick below and tapering above, 60–75 μ long. Conidia oblong, hyaline continuous, 12–16×4–5 μ, a little narrower at one end.

On leaves of *Commelina angustifolia*. No. 1798.

COLLETOTRICHUM ERYTHRINAE E. & E.

Spots orbicular, rust-color, with the margin darker, ½ cm. diam. Acervuli epiphyllous, erumpent-superficial, 150–200 μ, diam. loosely clothed with simple, brown, sparingly septate hairs 70–100 × 3–4 μ. Conidia oblong–cylindrical, hyaline, continuous, 14–16 × 3½, μ.

Differs from *C. Commelinae* in its larger spots and narrower sporules.

On leaves of *Erythrina herbacea*. No. 2123.

COLLETOTRICHUM AZALEÆ E. & E.

Spots dark rusty-brown, orbicular, 3–8 mm. diam., definite, with

the margin concolorous. Acervuli mostly epiphyllous, erumpent, 120–μ diam., sparingly clothed with slender, black, slightly curved, septate bristles 50–70 × 3–3½ μ. Conidia oblong, 8–13 × 3–3½ μ.

Sporules shorter than in either of the two preceding species.

On leaves of *Azalea viscosa*. No. 1991.

CERCOSPORA CASSAVAE E. & E.

Spots orbicular, light-rusty brown, 3–5 mm. diam. definite, with a narrow, darker margin. Hyphae cespitose, continuous, slightly toothed above, yellowish-hyaline, 30–40 × 4 μ. Conidia cylindrical or clavate-cylindrical, 3–5-septate, hyaline, 20–50 × 5–6 μ. Amphigenous.

On leaves of *Cassava*. No. 1950.

CERCOSPORA CHRYSOBALANI E. & E.

Spots deep red-brown, definite, mostly irregular in shape, 1–6 mm. diam. Hyphae amphigenous, cespitose, brownish, continuous, slightly narrowed and subundulate above, 20–30×3½–4 μ. Conidia, slightly narrowed above, subhyaline, 3–8–septate, 30–70×3 μ.

On leaves of *Chrysobalanus oblongifolius*. Nos. 1949 and 1793.

CERCOSPORA GALACTIAE E. & E.

Amphigenous. Spots none. Hyphae densely tufted, 100–110×6 μ, septate, dark-brown, subgeniculate, and subundulate above; the tufts of hyphae forming loose floccose patches ½–1¼ mm. across, scattered over the entire surface of the leaf. Conidia obclavate cylindrical, slightly colored, 2–8–septate, 30–70 × 5–6 μ.

Very distinct from *C. flagellifera* Atk., on *Galactia pilosa*.

On *Galactia Nuttallii*. No. 1987.

ISARIOPSIS PENICILLATA E. & E.

Stipe about ½ mm. high, composed of simple, pale yellow threads closely compacted at base and 10–15 μ thick, relaxed above and spreading in a brush-like manner, the fusoid yellowish-hyaline 22–25 × 5 μ (obscurely 1–3-septate)? conidia terminal on the fibers composing the stipe.

Parasitic on mycelium of *Meliola* on leaves of *Gordonia lasianthus*. No. 1956.

UREDO SCHOENOCAULI E. & E.

Sori erumpent, mostly elliptical, ½–¾ × ⅓ mm., at first covered by the epidermis, soon exposed, yellow. Spores globose

15 μ diam., oftener obovate or elliptical, 19–22×14–16 μ, slightly aculeate.

On *Schoenocaulon gracilis*. No. 2015.

III. MEXICAN FUNGI.

Collected in the vicinity of Monterey, Mexico, by Dr. B. F. G. Egeling.

SCHIZOPHYLLUM EGELINGIANUM E. & E.

Pilei imbricated, reniform, margin entire or lobed, 1½ cm. long, 2 cm. wide, white-tomentose, the margin cleft, white-pilose, depressed behind around the short lateral stem, zoneless; flesh about 1 mm. thick, white, carnose-coriaceous. Lamellae pale flesh-color, unequal, with a row of very short ones around the margin, narrow. Spores colorless, globose-elliptical, about 3 × 2½ μ, borne on clavate-cylindrical basidia, 18–20 × 3½ μ.

The pilei are borne on a white, subcoriaceous subiculum erumpent through the epidermis in patches 3–4 mm. across, often becoming confluent for 1–8 cm. in extent and nearly surrounding the stem.

On dead, hollow stem of *Magnolia Mexicana*, June, 1895.

ROSELLINIA POLIOSA E. & E.

Perithecia hemispheric-prominent, 1¾–2 mm, diam., covered by a thin, ashen-gray coating, which also overspreads the surface of the wood, and may be only accidental. Ostiolum papilliform. Asci cylindrical, 150–200×13–16 μ, (paraphysate) ?, 8-spored. Sporidia broad oblong-fusoid, brown, finally nearly opake, but when young the extremities are paler, 25–35×12–15 μ.

On dead wood. June, 1895.

DIDYMOSPHAERIA SPHAEROPHORA E. & E.

Perithecia scattered, buried, 1 mm. diam., finally more or less distinctly collapsing, leaving the erumpent apex and broad papilli form ostiolum prominent in the center of the depression. Asci cylindrical, stipitate, paraphysate, 8-spored, p. sp. 100–110×10–12 μ. Sporidia uniseriate, oblong, uniseptate, dark brown, constricted, more or less distinctly roughened, 16–20×6–8 μ. with a depressed-globose, yellowish-hyaline appendage at each end.

Differs from *D. appendiculosa* Speg. in its larger perithecia, smaller asci and sporidia, and the different character of the appendages.

On *Agave* sp.

PHYLLACHORA? YUCCAE E. & E.

Stromata gregarious, elliptical or oblong, ½–1½ × ½ mm., subseriate, sunk in the substance of the leaf, and covered above by the blackened epidermis. Ascigerous cells 80–90 μ diam., finally confluent. Asci oblong–cylindrical, narrowed above, aparaphysate, 50–60 × 7–8 μ, filled with granular matter and oil-globules. Sporidia not yet formed.

On *Yucca angustifolia*. June, 1895.

HAPLOSPORELLA MEXICANA E. & E.

Stromata numerous, purplish-black, erumpent, subseriate, often confluent for 1 or more cm. and 2–3 mm. broad, entirely covered at first, soon visible through cracks in the ruptured epidermis, of soft, carnose texture, flat-pulvinate, the mycelium blackening the inner substance of the stem. Perithecia (ascigerous cells)? closely packed, 190–230 μ. diam., becoming subconfluent. Sporules obovate at first, and hyaline, finally brown and mostly elliptical, 15–22×11–13 μ., on stout basidia mostly shorter than the sporules.

On account of the carnose stroma this should perhaps be referred to the genus *Aschersonia* in the Fam. Nectrioideae, but the sporules and the dark color would make it *Haplosporella*.

On dead stem of *Magnolia Mexicana*. June, 1895.

MELOGRAMMA EGELINGII E. & E.

Stroma subcuticular, 1–2 mm. diam., ovate, the apex erumpent, substance white, granular and finally crumbling. Perithecia (14–20), peripherical, ovate, 200 μ high, 150 μ broad, black, immersed in the surface of the stroma which finally crumbles away, leaving them partially free, narrowed above into an acute ostiolum, which is finally porforated and obtuse. Asci clavate-cylindrical, short-stipitate, paraphysate, p. sp. 75–85 × 12 μ. Sporidia biseriate, cylindrical, obtusely rounded at the ends, 5–septate and more or less constricted at the septa, one cell near the middle generally swollen, yellow-brown, becoming opake, 20–23 × 6 μ.

On dead leaves of *Agave*. May, 1893.

Proceedings of the Club.

TUESDAY EVENING, OCTOBER 8TH, 1895.

The President in the chair and 27 persons present.

Prof. Arthur M. Edwards, M. D., Mrs. C. Rice and Mr. Charles Ericson were elected active members.

A communication was received from the Secretary of the Council of the Scientific Alliance, announcing the opinion of the Council that it would be advantageous for the secretaries of the societies forming the Alliance to transmit abstracts of the proceedings for publication in *Science*. Upon motion of Dr. Allen, it was unanimously resolved that the Club concur in the above opinion.

Dr. T. F. Allen reported a visit to the islands lying near Lands End, and spoke of the peculiarly equable climate, and its effects upon the flora and productions. He had found Hooker's British Flora an unsatisfactory book for field work.

Mr. Lighthipe spoke of his observations in the pine barrens, especially with reference to *Schizaea* and *Chrysopsis*.

Dr. Small exhibited a map upon the blackboard, indicating his travels in Georgia in securing a forestry exhibit for the Atlanta exposition. He also briefly described the form of the exhibit, which was in duplicate. He promised a farther report at a subsequent meeting.

Dr. Britton announced collecting *Panicum colonum* L., a tropical species related to *P. Crus-galli*, in Virginia, and the discovery of a large patch of *P. verrucosum* on Staten Island by Mr. Tyler. He also announced that the organization and actual commencement of work on the New York Botanical Garden had taken place.

Brief remarks were also made by Miss Ingersoll and Messrs. Tyler, Van Brunt and Van Sickle. Mr. Van Sickle referred particularly to the occurrence of the Russian Thistle in northern Jersey and of *Azolla Caroliniana* at Passaic.

The President reported upon his observations upon the western slope of the Catskills, a few miles from the locality of the old Mountain House, speaking particularly of a white flowered form of *Impatiens aurea*. He brought a number of sets of some of his more interesting collections which were distributed among the members.

Index to recent Literature relating to American Botany.*

Andrews, F. M. Development of the Embryo-sac of *Jeffersonia diphylla*. Bot. Gaz. **20**: 423–425. *pl. 28*. 25 S. 1895.

Arthur, J. C. Development of Vegetable Physiology. Bot. Gaz. **20**: 381–402. 25 S. 1895.

Aubert, A. B. Liste partielle des Diatomées d'Orono, Maine, U. S. A. Le Diatomiste, **2**: 150–151. Mr. 1895.

Aubert, A. B. Liste partielle des Diatomées de Somesville, Seal Harbor, et Northeast Harbor, Etat du Maine, U. S. A. Le Diatomiste, **2**: 140–143. D. 1894.

Baker, S. G. *Prochynanthes Bulliana*. Curt. Bot. Mag. **51**: *pl. 7427*. Au. 1895.
Native of Mexico.

Barnhart, J. H. On the two Editions of Emory's Report, 1848. Bull. Torr. Bot. Club, **22**: 394, 395. 30 S. 1895.

Bastin, E. S. Structure of our Cherry Barks. Am. Journ. Pharm. **67**: 435–452. *f. 1–14*. S. 1895.

Bastin, E. S. Structure of our Hemlock Barks. Am. Journ. Pharm. **67**: 356–362. *f. 1–5*. Jl. 1895.

Bicknell, E. P. The Genus *Sanicula* in the eastern United States, with Descriptions of two new Species. Bull. Torr. Bot. Club, **22**: 351–361. *pl. 241–245*. 31 Au. 1895.

Blasdale, W. C. Observations on *Puccinia mirabilissima*. Erythea, **3**: 131–135. *pl. 1*. 3 S. 1895.

Brotherus, V. F. Beiträge zur Kenntniss der brasilianischen Moosflora. Hedwigia, **34**: 117–131. 19 Je. 1895.
Describes new species in *Ephemerum*, *Systegium*, *Trematodon*, *Leucobryum*, *Octoblepharum*, *Fissidens*, *Syrrhopodon*, *Calymperes*, *Pottia*, *Hyophila*, *Barbula*, *Macromitrium*, *Tayloria*, *Physcomitrium*, *Bryum*, *Garovaglia*, *Sigmatella* and *Sphagnum*.

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* At the Springfield meeting of the American Association for the Advancement of Science, the Section of Botany adopted the following limitations of the contents of this Bibliography:

1. That all bacteriological, horticultural and agricultural titles be omitted, but in any case of doubt the title is to be included.

2. That all references to exsiccatae be excluded.

3. That all references to reviews be excluded.

The Bibliography Committee and the Editors of the BULLETIN would renew their request that omissions from this record be communicated.

Burrill, T. J. *Rhus* Poisoning. Gard. & For. **8**: 368. 11 S. 1895.

Bush, B. F. *Quercus Phellos* × *rubra* in Missouri. Gard. & For. **8**: 379. 18 S. 1895.

Cheney, L. S. *Sphagna* of the Upper Wisconsin Valley. Trans. Wisc. Acad. Sci. Arts & Lett. **10**: 66–68. 1894–95.

Cheney, L. S. Parasitic Fungi of the Wisconsin Valley. Trans. Wisc. Acad. Sci. Arts & Lett. **10**: 69. 1894–95.

Cheney, L. S. Hepaticae of the Wisconsin Valley. Trans. Wisc. Acad. Sci. Arts & Lett. **10**: 70–72. 1894–95.

Cleve, P. T. Les Diatomées de l'Equateur. Le Diatomiste, **2**: 99–103. Je. 1894.

Cleve, P. T. Sur quelques Especes nouvelles on peu connues. Le Diatomiste, **2**: 143–147. D. 1894.
Descriptions of several new American diatoms.

Comes, O. Sulla sistemazione botanica delle specie e delle razze del genere *Nicotiana*. Atti Ist. Incor. Napoli (IV.) **8**: [reprint, pp. 32]. 1895.

Coville, F. V. Dr. Robinson and Homonyms. Bot. Gaz. **20**: 320–322. 15 Jl. 1895.

Coville, F. V. The Nomenclature Question; theoretical objections to a stable nomenclature. Bot. Gaz. **20**: 428, 429. 25 S. 1895.

Davis, W. T. Botanical Notes. Proc. Nat. Sci. Assoc. Staten Island, **4**: 83. 14 S. 1895.

Davy, J. B. Transcripts of some Descriptions of Californian Genera and Species.—V. Erythea, **3**: 136–138. 3 S. 1895.

Deane, W. Notes from my Herbarium.—III. Bot. Gaz. **20**: 345–348. *fig.* 15 Au. 1895.

Dewey, L. H. *Laphamia ciliata* sp. nov. Bot. Gaz. **20**: 425. 25 S. 1895.

Dewey, L. H. Tumble Mustard. Bull. Torr. Bot. Club, **22**: 370. 31 Au. 1895.
Note on the distribution of *Sisymbrium altissimum*.

Ellis, J. B., and **Everhart, B. M.** New Fungi, mostly Uredineae and Ustilagineae from various Localities, and a new *Fomes* from Alaska. Bull. Torr. Bot. Club, **22**: 362–364. 31 Au. 1895.
Describes new species in *Fomes*, *Ustilago*, *Sorosporium*, *Puccinia*, *Ravenelia*, *Doassansia*, *Aecidium* and *Peronospora*.

Engelhardt, H. Uber neue Tertiärpflanzen Süd-Amerikas. Abh. Senckenb. Naturforsch. Gesellsch. **19**: 1–47. *pl. 1–9.* 1895.

Ganong, W. F. Botanical Nomenclature and Non-systematists. Bot. Gaz. **20**: 317–320. 15 Jl. 1895.

Gerard, W. R. Origin of the name *Sambucus*. Gard. & For. **8**: 368. 11 S. 1895.

Grevillius, A. S. Ueber Mykorrhizen bei den Gattung *Botrychium*, nebest einigen Bemerkungen ueber das auftreten von Wurzelsprossen bei *B. Virginianum* Sw. Flora, **80**: 445–453. 1895.

Harvey, F. L. Contribution to the Characeous Plants of Maine. Bull. Torr. Bot. Club, **22**: 397, 398. 30 S. 1895.

Hieronymus, G. Bemerkungen über einige Arten der Gattung *Stigonema*. Hedwigia, **34**: 154–172. 19 Je. 1895.

New species from South America and notes and redescriptions of North American species.

Hollick, A. Identification of fossil Leaves. Bot. Gaz. **20**: 332. 15 Jl. 1895.

Hooker, J. D. *Helianthus debilis*. Curt. Bot. Mag. **51**: *pl. 7432.* S. 1895.

Hooker, J. D. *Rumex hymenosepalus*. Curt. Bot. Mag. **51**: *pl. 7433.* S. 1895.

Jenman, G. S. *Polypodium* (*Phegopteris*) *Trinidadensis*. Gard. Chron. **18**: 235. 31 Au. 1895.

A new species from Trinidad.

Knowlton, F. H. Description of a new problematical Plant from the Lower Cretaceous of Arkansas. Bull. Torr. Bot. Club, **22**: 387–390. *f. 1–3.* 30 S. 1895.

Lloyd, F. E. Teratological Notes. Bull. Torr. Bot. Club, **22**: 396, 397. *pl. 247.* 30 S. 1895.

Lindau, G. Acanthaceae Americanae. Bull. Herb. Boiss. **3**: 361–372; 479–493. Au. S. 1895.

Descriptions of many new species from South and Central America.

Lodeman, E. G. Poisoning from *Rhus*. Gard. & For. **8**: 398. 2 O. 1895.

Lueders, H. F. The Vegetation of the Town Prairie du Sac. Trans. Wisc. Acad. Sci. Arts & Lett. **10**: 510–524. *pl. 17.* 1894–95.

Macloskie, G. Antidromy of Plants. Bull. Torr. Bot. Club, **22**: 279–387. 30 S. 1895.

MacDougal, D. T. Irritability and Movement in Plants. Pop. Sci. Month. 1895: [reprint pp. 10]. Je. 1895.

McClatchie, A. J. Flora of Pasadena and Vicinity. Reid's History of Pasadena (Cal.) 605–649. 1895. Reprint.

A list of 1056 species and varieties, from Myxomycetes to Compositae.

Meehan, T. *Trichostema dichotomum.* Meehan's Month. **5**: 161. *pl. 9.* S. 1895.

Meehan, T. *Arethusa bulbosa.* Meehan's Month. **5**: 141. *pl. 8.* Au. 1895.

Micheli, M. Contributions a la Flore du Paraguay. Pipéracées par C. de Candolle. Mem. Soc. Phys. et d'Hist. Nat. de Genève, **32**. no. 2, 1–10. *pl. 52–54.* 1894–95.

New species and varieties described and figured are *Peperomia psilostachya, Piper cinerascens, P. amplecteus aromäticum. P. fulvescens* C. DC. from Morong and Britton's Enumeration, p. 214, is also figured.

Millspaugh, C. F. Decapitalization. Bot. Gaz. **20**: 429. 25 S. 1895.

Möbius, M. Ueber einige brasilianische Algen. Hedwigia, **34**: 173–176. 19 Je. 1895. 177–180. *pl. 2.* 1 Au. 1895.

Describes and figures *Mougeotia Uleana.*

Müller, J. Lichenes exotici.—IV. Hedwigia, **34**: 139–145. 19 Je. 1895.

Describes several species from both North and South America.

Müller, J. Lichenes Ernstiani a cl. Prof. Dr. Ernst prope Caracas lecti quos enumerat. Hedwigia, **34**: 146–153. 19 Je. 1895.

Olive, E. W. Observations upon some Oklahoma Plants. Bull. Torr. Bot. Club, **22**: 390–394. 30 S. 1895.

Pettit, A. S. *Arachis hypogaea* L. Mem. Torr. Bot. Club, **4**: 275–296. *pl. 83–85.* 5 Je. 1895.

Philippi, R. A. Plantas nuevas Chilenas. Ann. Univ. Chil. **87–90**. 1895.

Descriptions of many new species of Sympetalae.

Robinson, B. L., and **Greenman, J. M.** On the Flora of the Galapagos Islands as shown by the Collections of Dr. G. Baur. Am. Journ. Sci. (III.) **50**: 135–149. 1 Au. 1895.

Robinson, B. L., and **Greenman, J. M.** New and noteworthy Plants, chiefly from Oaxaca, collected by Messrs. C. G. Pringle, L. C. Smith and E. W. Nelson. Am. Journ. Sci. (III.) **50**: 150–168. 1 Au. 1895.

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Unona Panamensis, *U. bibracteata*, *Malvaviscus Pringlei* E. G. Baker and *Lap hamia Toumeyi*.

Rodrigues, J. B. Hortus Fluminensis on Breve Noticia sobre as Plantas Cultivadas no Jardim Botanico do Rio de Janeiro. 4to. pp. 307. *pl. 1–13*. Rio de Janeiro. 1895.

Rothrock, J. T. Our Pennsylvania Forests. Journ. Frankl. Inst. **140**: 105–117. Au. 1895.

Rothrock, J. T. The Sugar Maple. Forest Leaves, **5**: 56–58. Au. 1895.

Rothrock, J. T. The Locust Tree. Forest Leaves, **5**: 72, 73. O. 1895.

Rowlee, W. W. The Aeration of Organs and Tissues in *Mikania* and other Phanerogams. Proc. Am. Micros. Soc. **15**: 143–166. *pl. 1–6*. Mr. 1894.

Rusby, H. H. An Enumeration of the Plants collected in Bolivia by Miguel Bang, with descriptions of new genera and species. Part 2. Mem. Torr. Bot. Club, **4**: 203–274. 27 Ap. 1895.

Describes 97 new species of Spermatophytes.

Rydberg, P. A. Flora of the Sand Hills of Nebraska. Contr. Nat. Herb. **3**: 133–203. *pl. 1*. 14 S. 1895.

Annotated catalogue of species. *Carduus Plattensis* is described as new and figured.

Sargent, C. S. *Litsia geniculata*. Gard. & For. **8**: 374. *f. 52*. 18 S. 1895.

Sargent, C. S. *Cladrastis*. Gard. & For. **8**: 372. 18 S. 1895.

Sargent, C. S., Editor. *Agave Utahensis*. Gard. & For. **8**: 384. *f. 53*. 25 S. 1895.

Saunders, C. F. *Scolopendrium Scolopendrium*. Linnaean Fern Bull. **12**: 1, 2. O. 1895.

Schumann, K. *Rebutia minuscula*. Monats. Kakteenk. **5**: 102. Jl. 1895.

Setchell, W. A. Daniel Cady Eaton, 1834–1895. Bull. Torr. Bot. Club, **22**: 341–351. 31 Au. 1895 (with portrait).

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